FEMA USACE
Senior Leadership Seminar

Command & Control in Multi-State, Multi-Region Disasters

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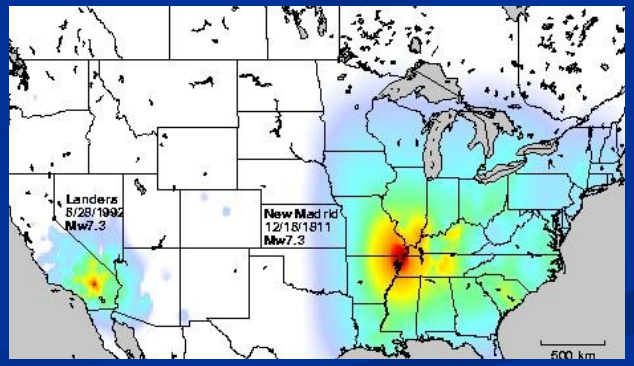
New Madrid Seismic Zone Catastrophic Planning:

The Challenge in New Madrid

- NMSZ = Huge Fault, Huge Damage, Huge Impact
- 150-mile long fault from Arkansas through Missouri, Tennessee & Kentucky to Illinois
- Significant national impact
  - Ripple effect across America
- Potential for greater effect than quake in CA
- Central U.S. earthquakes on a cycle
- Northridge, CA cost approx $40B in 1994
- Estimated building loss -- $70B
- Tremendous impact on critical infrastructure
- 44M people live in eight-state region
  - 12M in high risk area
- Severe weather & significant evacuation issues

Northridge (6.7M) vs. 1886 (



Landers, CA (7.3M) vs. 1812

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Fires, floods, landslides, and …

- **Secondary failures turn disaster to catastrophe**

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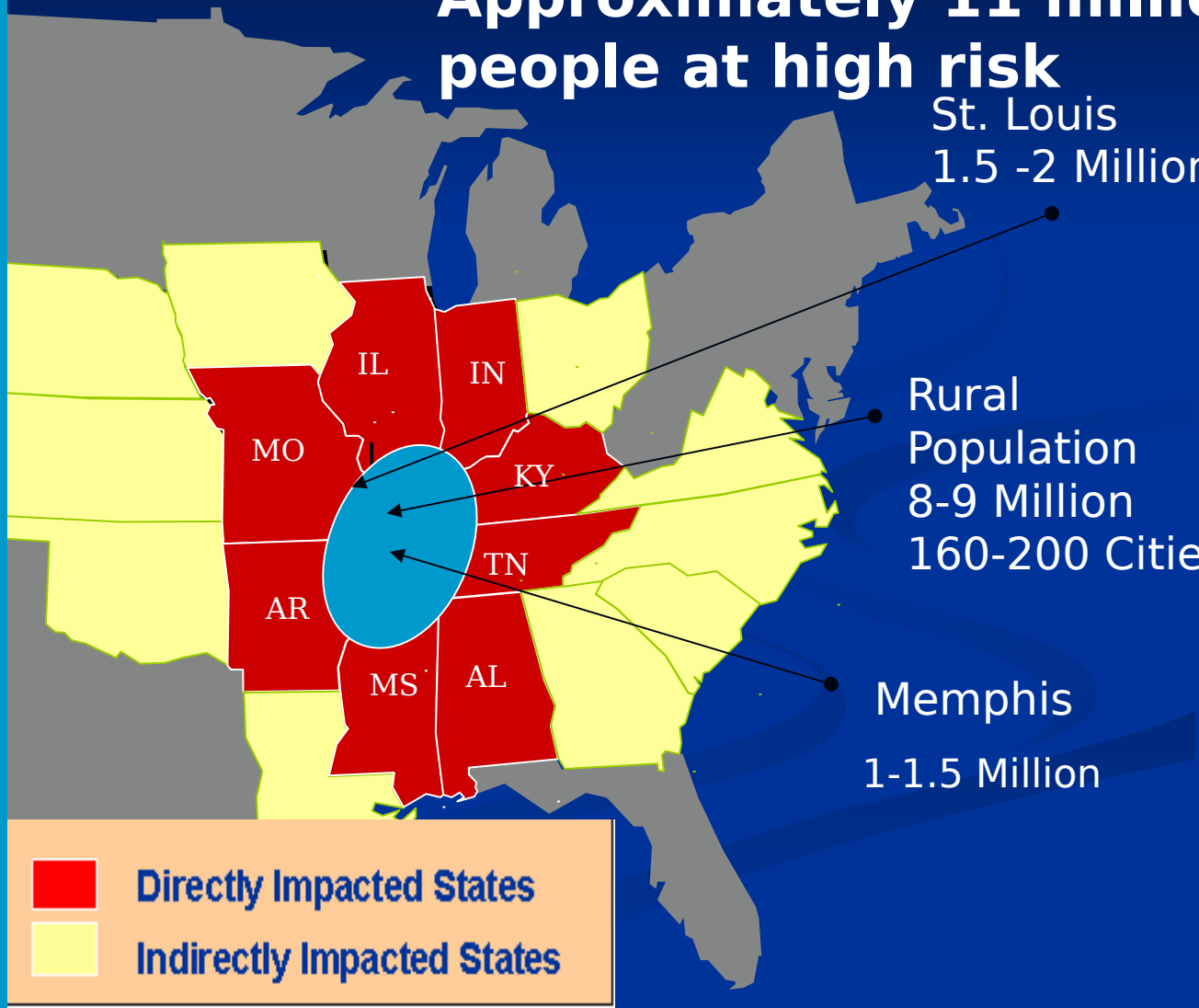
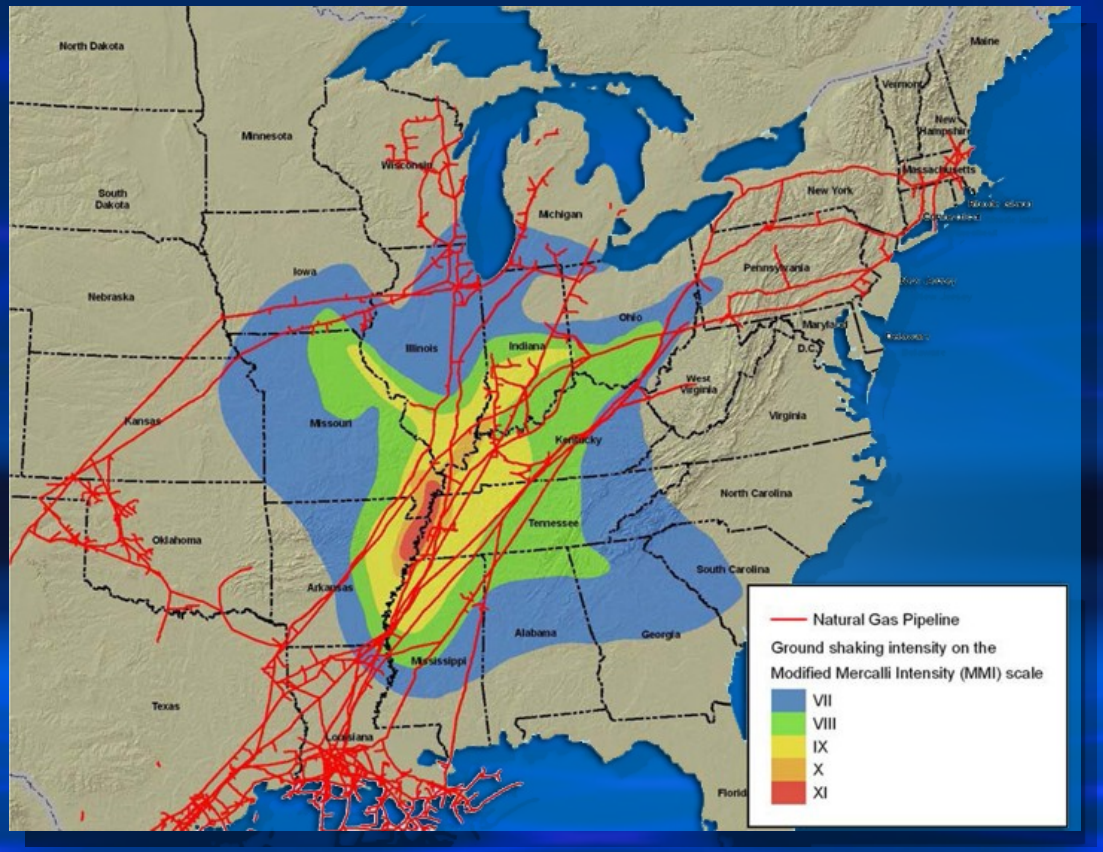
New Madrid Seismic Zone Catastrophic Planning:

The Response Challenges

- No notice event that is not commonly recognized
- Consequences eclipse Katrina
- Large area of impact
  - 126,575 Sq. Miles
- Multiple jurisdictions with multiple governors
- Significant infrastructure impacts
- Response problems during multiple aftershocks
- Poor situational awareness
- Security demands
- Mass care/shelter needs
- Major housing



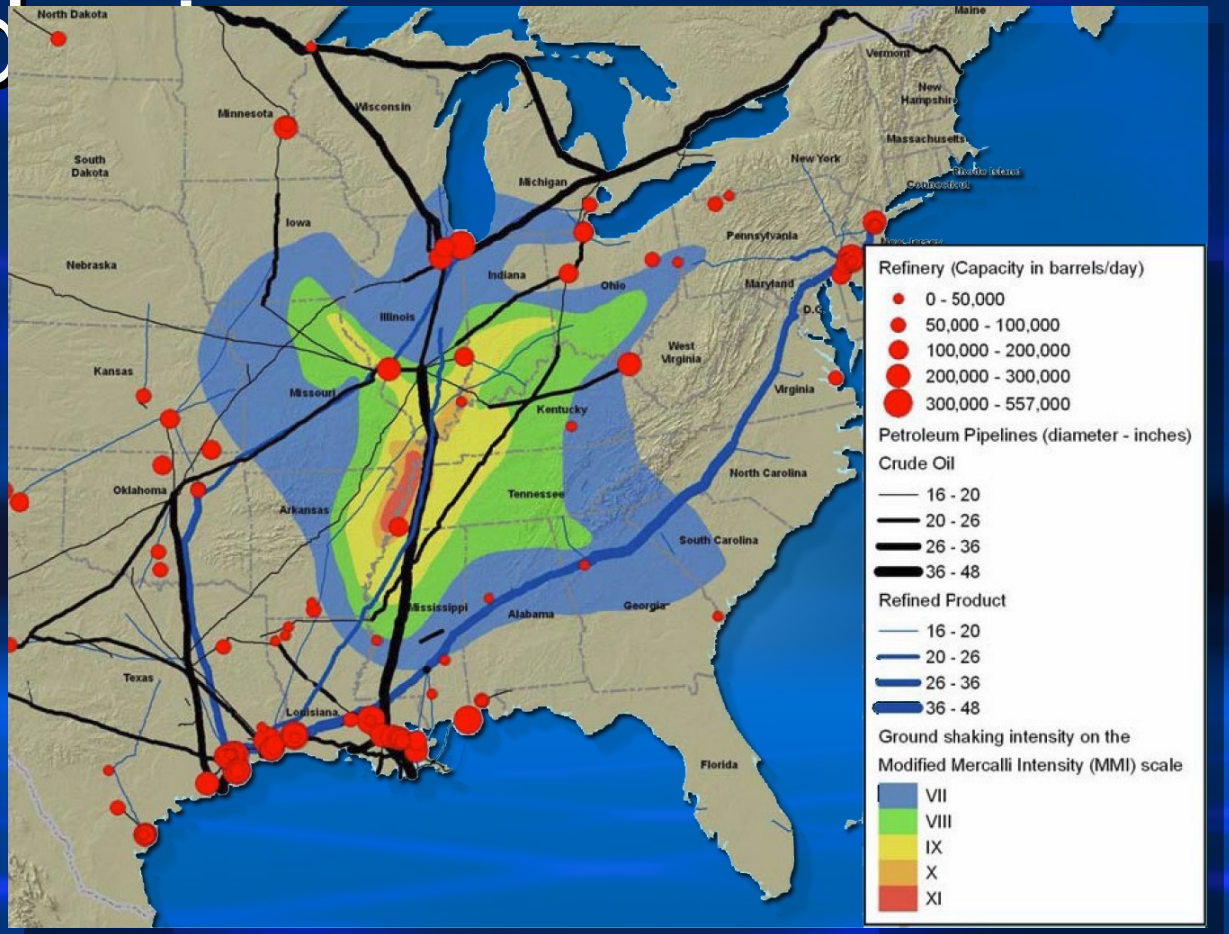
Natural Gas Pipelines



Consequences

- Chicago area debilitated by 25% reduction
- Northeast United States reduced by 10-20%
- Reductions are dependent on the season in which the earthquake occurs

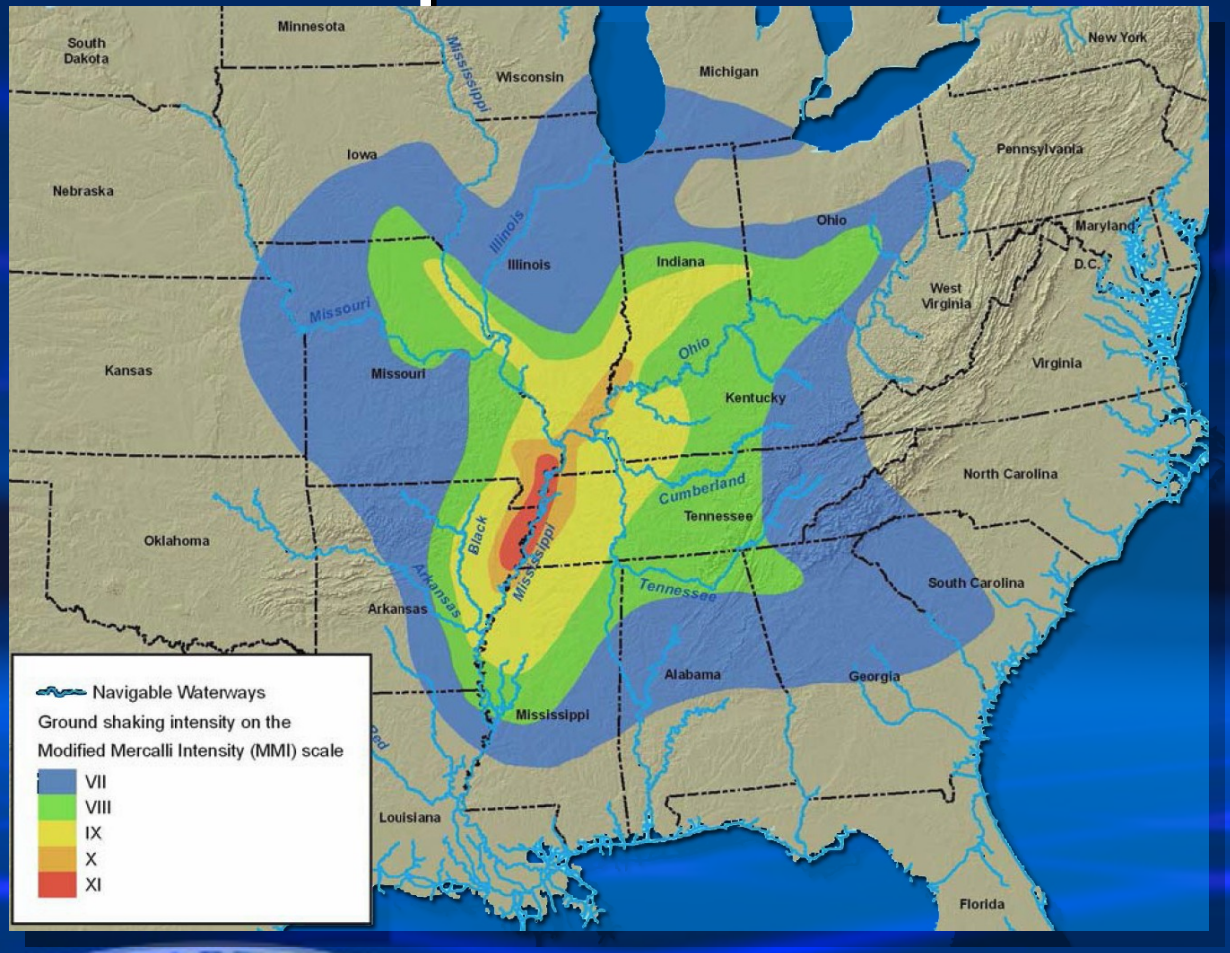
Crude Oil and Refined Prod



Consequences

- 3 million barrels per day loss to the Midwest
- Price spikes
- Severe shortages
- 3 week to 3 month+ repair time

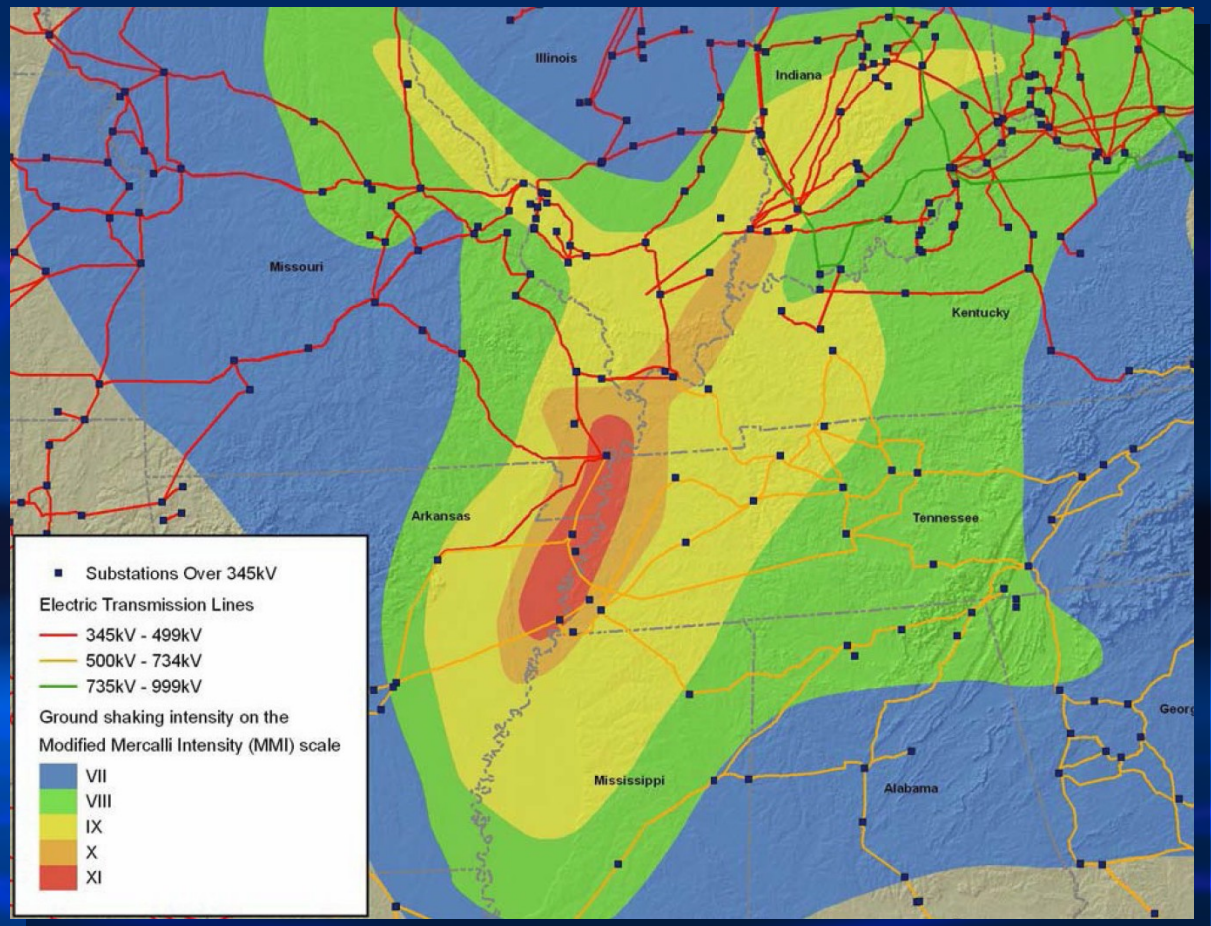
Coal Transportation



Consequences

River Region	Tons of disrupted barge coal	Fraction of annual coal flow
Upper Mississippi River	6M Tons	100 percent
Illinois Waterway	940K Tons	100 percent
Lower-Upper Mississippi River	1.3M Tons	100 percent
Tennessee River	7.5M Tons	100 percent
Ohio River	136M Tons	21 percent
Lower Mississippi River (Cairo, IL – Baton Rouge, LA)	12M Tons	63 percent
Lower Mississippi River (Baton Rouge to the Gulf)	1.4M Tons	89 percent

Electric Power



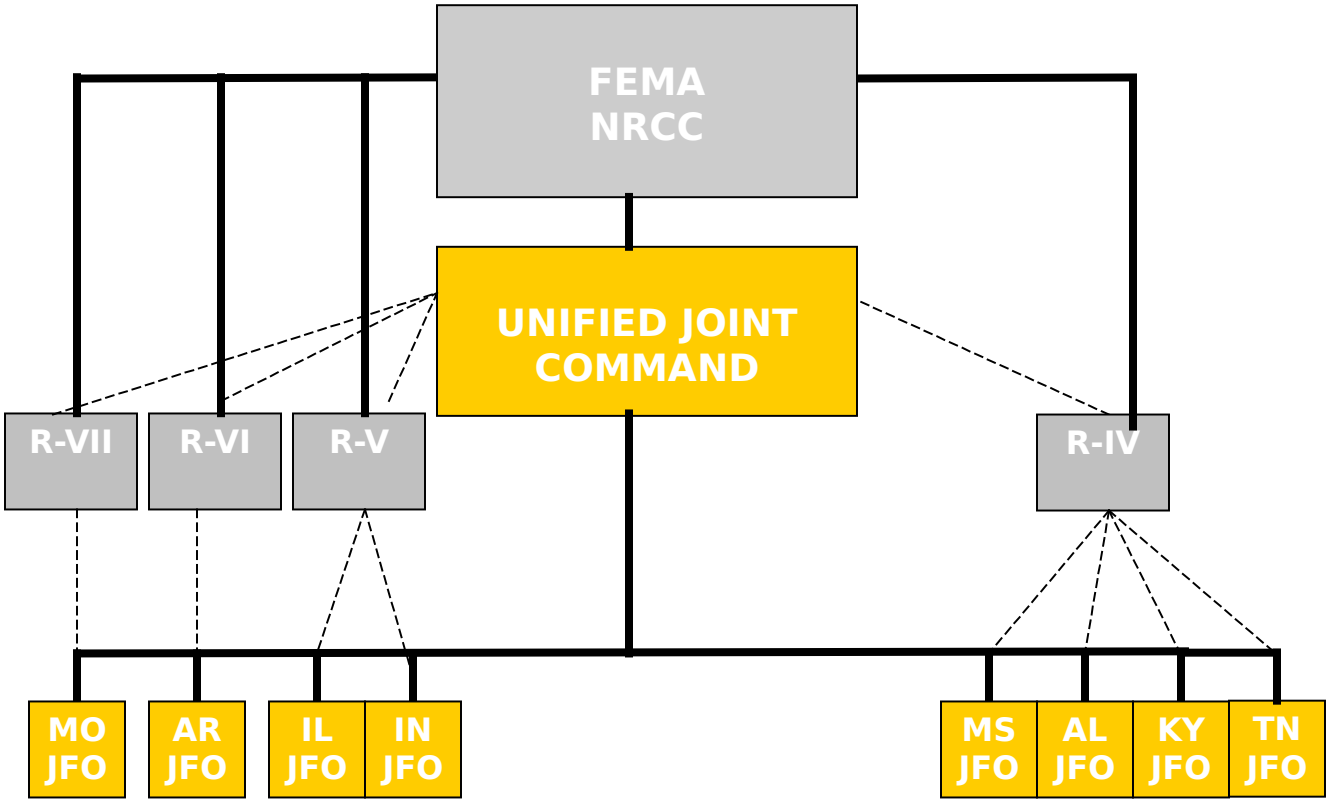
Consequences

- Blackout affecting much of the entire Eastern Interconnection
- Weakest Link high-voltage, high-capacity transformers
- Large power plant damage
- Weeks to months for plant repair

Transportation Rail/Highway/Air

- Loss of 2 Memphis rail bridges; local, regional impact
- National network resilient?
- Significant national economic loss likely
- 21% Memphis road bridges sustain significant damage
- 22% repairable damage; 57% minor damage
- Loss of Memphis International Airport
  - $3.5 million to air travelers per week
- Largest airfreight hub in the world
  - Losses depend on FEDEX contingency plans

Unified Joint Command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NRCC
UNIFIED JOINT
COMMAND
R-VII
R-VI
R-V
R-IV
MO
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MS
JFO
AL
JFO
KY
JFO
TN
JFO

Riverine Task Force

USCG Lead
USACE
EPA
DHS/FEMA
DOT
DOD
Private Sector
DHS Infrastructure Protection

Homeland Security

FEMA